

Claims

[c1] What is claimed is:

1. A flat media cutting device comprising:

a planar base having a normal vector in a first direction;

two supports fixed to the base;

a clamp extending in a second direction perpendicular to the first direction between the two supports, each end of the clamp connected to one support, wherein at least one support prevents movement of the clamp in the second direction and opposite and the supports allow movement of the clamp in the first direction and opposite;

a slider mounted in a slidable manner on the clamp, the slider comprising a cutting tool;

a linear actuator parallel to the clamp, the linear actuator connected to the slider; and

a motor connected to the linear actuator;

wherein when the motor drives the linear actuator, the slider is driven along the clamp and the cutting tool cuts media held to the base by the clamp.

[c2] 2. The flat media cutting device of claim 1 wherein the linear actuator is a threaded rod, and the slider further

comprises a slider body and a threaded surface connected to the slider body and meshing with the threaded rod.

- [c3] 3. The flat media cutting device of claim 2 wherein the threaded rod is rotatably connected to the clamp at one end, and connected to the motor at the other end by a transmission that allows the threaded rod to move in the first direction and opposite with the clamp.
- [c4] 4. The flat media cutting device of claim 2 wherein the threaded rod is rotatably connected to each support at each end and prevented from moving in the first direction and opposite, and threaded surface of the slider is connected to the slider by a pinned connection allowing the slider body to move in the first direction and opposite.
- [c5] 5. The flat media cutting device of claim 1 wherein the linear actuator is a belt, and the slider is fixed to the belt by a pinned connection allowing the slider body to move in the first direction and opposite.
- [c6] 6. The flat media cutting device of claim 1 further comprising a transmission connecting the motor to the linear actuator.
- [c7] 7. The flat media cutting device of claim 6 wherein the

transmission comprises a gear connected to the linear actuator and a meshing gear connected to the motor.

- [c8] 8. The flat media cutting device of claim 6 wherein the transmission comprises a friction drive.
- [c9] 9. The flat media cutting device of claim 8 wherein the a friction drive is a belt or a flexible connector.
- [c10] 10. The flat media cutting device of claim 1 further comprising a clamp actuator connected to one end of the clamp or the corresponding support for moving the clamp in the first direction and opposite, the clamp actuator comprising a handle.
- [c11] 11. The flat media cutting device of claim 1 further comprising a switch connecting the motor to a power source, wherein the switch controls electrical power flow to the motor.
- [c12] 12. The flat media cutting device of claim 11 further comprising two detect switches connected to the motor, each installed at one end of the range of movement of the slider along the clamp, wherein the slider triggering a detect switch reverses the direction of the motor.
- [c13] 13. The flat media cutting device of claim 1 further comprising a mechanical clutch connected between the mo-

tor and the linear actuator, the mechanical clutch limiting the torque that the motor provides to the linear actuator.

- [c14] 14. A flat media cutting device comprising:
- a planar base having a normal vector in a first direction;
 - two supports fixed to the base;
 - a clamp extending in a second direction perpendicular to the first direction between the two supports, each end of the clamp connected to one support, wherein at least one support prevents movement of the clamp in the second direction and opposite and the supports allow movement of the clamp in the first direction and opposite;
 - a clamp actuator connected to one end of the clamp or the corresponding support for moving the clamp in the first direction and opposite, the clamp actuator comprising a handle;
 - a threaded rod parallel to the clamp, the threaded rod rotatably connected to the clamp at one end;
 - a slider mounted in a slidable manner on the clamp, the slider comprising slider body, a threaded surface connected to the slider body and meshing with the threaded rod, and a cutting tool;
 - a transmission connected to the other end of the threaded rod, the transmission allowing the threaded rod

to move in the first direction and opposite with the clamp; and
a motor connected to the transmission for driving the threaded rod;
wherein after the clamp actuator is actuated to cause the clamp to press media to the base, the motor drives the threaded rod so that the slider is driven along the clamp and the cutting tool cuts the media.

[c15] 15. The flat media cutting device of claim 14 wherein the transmission comprises a gear connected to the motor, said gear meshing with the threaded rod.

[c16] 16. The flat media cutting device of claim 14 wherein the transmission is a belt or a flexible connector.

[c17] 17. The flat media cutting device of claim 14 further comprising:
a switch connecting the motor to a power source,
wherein the switch controls electrical power flow to the motor; and
two detect switches connected to the motor, each installed at one end of the range of movement of the slider along the clamp, wherein the slider triggering a detect switch reverses the direction of the motor..

[c18] 18. The flat media cutting device of claim 14 further

comprising a mechanical clutch connected between the motor and the threaded rod, the mechanical clutch limiting the torque that the motor provides to the linear actuator.

- [c19] 19. A flat media cutting device comprising:
- a planar base having a normal vector in a first direction;
 - two supports fixed to the base;
 - a clamp extending in a second direction perpendicular to the first direction between the two supports, each end of the clamp connected to one support, wherein at least one support prevents movement of the clamp in the second direction and opposite and the supports allow movement of the clamp in the first direction and opposite;
 - an actuating means for allowing actuation of the clamp in the first direction and opposite;
 - a slider mounted in a slidable manner on the clamp, the slider comprising slider body and a cutting tool;
 - a driving means for driving the slider in the second direction and opposite;
 - a motor; and
 - a transmission means for transmitting power from the motor to the means for driving the slider;
- wherein when the motor drives the driving means by way of the transmission means, the slider is driven along the

clamp and the cutting tool cuts media held to the base by the clamp.

[c20] 20. The flat media cutting device of claim 19 wherein the transmission means allows the driving means to move in the first direction and opposite with the clamp, and limits the torque that the motor provides to the driving means.

[c21] 21. The flat media cutting device of claim 19 further comprising two detect switches connected to the motor, each installed at one end of the range of movement of the slider along the clamp, wherein the slider triggering a detect switch reverses the direction of the motor.